

WHAT IS CLAIMED IS:

1. A semiconductor wafer holder comprising:  
a first holding member having a semiconductor wafer support surface;  
an annular second holding member;  
a ring clamp rotatable relative to said second holding member to thereby urge said second holding member towards said first holding member so as to hold a semiconductor wafer therebetween,

said second holding member being provided with a packing that has a contact surface adapted to be brought into contact with said first holding member in a sealing fashion when said first and second holding members hold therebetween the semiconductor wafer, said packing having a recess formed in said contact surface; and

a conductive member provided in the recess of said packing and placed in contact with a conductive layer of the semiconductor wafer when said first and second holding members hold therebetween the semiconductor wafer.

2. A semiconductor wafer holder as set forth in claim 1, further comprising a member resiliently pressing said conductive member against the conductive layer of the semiconductor wafer.

3. A semiconductor wafer holder as set forth in claim 1, wherein said first holding member is plate-shaped.

4. A semiconductor wafer holder according to claim 1, wherein said ring clamp has an outer periphery having a plurality of protrusions formed thereon, said protrusions being arranged at given intervals, and said first holding member includes a plurality of pawls of an inverted L-shape, said plurality of protrusions being slid below said plurality of pawls to thereby clamp said first and second holding members together when said clamp is rotated through a given angle.

5. A semiconductor wafer holding according to claim 1, further comprising a hinge mechanism by which said first holding member and said second holding member are connected, said first and second holding members being pivotable about said hinge mechanism.

6. A semiconductor wafer holding according to claim 1, further comprising a ring retainer by which said second holding member and said ring clamp are connected, said ring clamp being capable of rotation on said second holding member through a specified angle.

7. A semiconductor wafer holder comprising:  
a first holding member in the form of a plate;  
an annular second holding member including a packing mounted thereon;  
and  
a ring clamp operable to press said second holding member against said first holding member so as to hold a semiconductor wafer therebetween, the semiconductor

wafer having an outer periphery,

said first holding member including a first conductive element arranged adjacent to the outer periphery of the semiconductor wafer held between said first and second holding members, and

said packing of said second holding member including a second conductive element which is placed in contact with said first conductive element and the conductive layer of the semiconductor wafer when the semiconductor wafer is held between said first and second holding members and sealed by said packing.

8. A semiconductor wafer holder according to claim 7, wherein said ring clamp has an outer periphery having a plurality of protrusions formed thereon, said protrusions being arranged at given intervals, and said first holding member includes a plurality of pawls of an inverted L-shape, said plurality of protrusions being slid below said plurality of pawls to thereby clamp said first and second holding members together when said clamp is rotated through a given angle.

9. A semiconductor wafer holding according to claim 8, further comprising a hinge mechanism by which said first holding member and said second holding member are connected, said first and second holding members being pivotable about said hinge mechanism.

10. A semiconductor wafer holding according to claim 7, further comprising a hinge mechanism by which said first holding member and said second holding member are

connected, said first and second holding members being pivotable about said hinge mechanism.

11. A semiconductor wafer holding according to claim 10, further comprising a ring retainer by which said second holding member and said ring clamp are connected, said ring clamp being capable of rotation on said second holding member through a specified angle.

12. A semiconductor wafer holding according to claim 7, further comprising a ring retainer by which said second holding member and said ring clamp are connected, said ring clamp being capable of rotation on said second holding member through a specified angle.

13. A semiconductor wafer holder for use in an electroplating system, the semiconductor wafer holder comprising:

an annular insulative member defining a central opening;

an annular packing disposed on said annular insulating member and defining a contacting surface for contacting a semiconductor wafer; and

at least one conductive member serving as a cathode and defining a portion of said contacting surface;

wherein said annular packing has an inner portion disposed diametrically interior to said at least one conductive member and an outer portion disposed diametrically exterior to said at least one conductive member.

14. A semiconductor wafer holder according to claim 13, wherein said at least one conductive member comprises one or more connectors having a plurality of holes.

15. A semiconductor wafer holder according to claim 13, wherein said annular insulative member comprises an insulating material.

16. A semiconductor wafer holder according to claim 15, wherein said insulating material comprises synthetic resin.

17. A semiconductor wafer holder according to claim 13, wherein said annular packing is removable.

18. A semiconductor wafer holder according to claim 13, wherein said annular packing comprises an elastic material.

19. A semiconductor wafer holder according to claim 13, wherein said at least one conductive member is connected to an external electrode.

20. A semiconductor wafer holder according to claim 13, wherein said annular packing and said at least one conductive member comprise a monolithic piece.

21. A semiconductor wafer holder according to claim 13, further comprising a plate-like holding member for holding the semiconductor wafer together with said annular

insulative member.

22. A semiconductor wafer holder according to claim 21, wherein said plate-like holding member comprises an insulative material.

23. A semiconductor wafer holder for use in an electroplating system, the semiconductor wafer holder comprising:

an annular insulative member defining a central opening;

an annular packing disposed on said annular insulating member and defining a contacting surface for contacting a semiconductor wafer; and

at least one conductive member serving as a cathode and defining a portion of said contacting surface;

wherein said at least one conductive member is connected to a connector disposed through said annular insulative member, and said connector is adapted to be connected to an external electrode.

24. A semiconductor wafer holder according to claim 23, wherein said annular insulative member comprises an insulating material.

25. A semiconductor wafer holder according to claim 24, wherein said insulating material comprises synthetic resin.

26. A semiconductor wafer holder according to claim 23, wherein said annular

packing is removable.

27. A semiconductor wafer holder according to claim 23, wherein said annular packing comprises an elastic material.

28. A semiconductor wafer holder according to claim 23, wherein said at least one conductive member is connected to an external electrode.

29. A semiconductor wafer holder according to claim 23, wherein said annular packing and said at least one conductive member comprise a monolithic piece.

30. A semiconductor wafer holder according to claim 23, further comprising a plate-like holding member for holding the semiconductor wafer together with said annular insulative member.

31. A semiconductor wafer holder according to claim 30, wherein said plate-like holding member comprises an insulative material.

32. A semiconductor wafer holder for use in an electroplating system, the semiconductor wafer holder comprising:

an annular insulative member defining a central opening;

an annular packing disposed on said annular insulating member and defining a contacting surface for contacting a semiconductor wafer; and

a plurality of conductive members disposed in said annular insulating member, each of said conductive members having an inner portion which contacts a semiconductor wafer and serves as a cathode, and an outer portion which is adapted to contact a conductive element electrically connected to an external electrode.

33. A semiconductor wafer holder according to claim 32, wherein said conductive member comprises one or more connectors having a plurality of holes.

34. A semiconductor wafer holder according to claim 32, wherein said annular insulative member comprises an insulating material.

35. A semiconductor wafer holder according to claim 34, wherein said insulating material comprises synthetic resin.

36. A semiconductor wafer holder according to claim 32, wherein said annular packing is removable.

37. A semiconductor wafer holder according to claim 32, wherein said annular packing comprises an elastic material.

38. A semiconductor wafer holder according to claim 32, wherein said annular packing and said at least one conductive member comprise a monolithic piece.



39. A semiconductor wafer holder according to claim 32, further comprising a plate-like holding member for holding the semiconductor wafer together with said annular insulative member.

40. A semiconductor wafer holder according to claim 39, wherein said plate-like holding member comprises an insulative material.

41. A semiconductor wafer holder according to claim 32, wherein said conductive element is provided on said plate-like holding member.

42. An electroplating system for electroplating a semiconductor wafer, comprising:

a plating bath containing an electrolytic solution;

an anode disposed within said plating bath; and

a semiconductor wafer holder for holding the semiconductor wafer so as to allow the semiconductor wafer to face said anode, the semiconductor wafer holder comprising:

an annular insulative member defining a central opening;

an annular packing disposed on said annular insulating member and defining a contacting surface for contacting a semiconductor wafer; and

at least one conductive member serving as a cathode and defining a portion of said contacting surface,

wherein said annular packing has an inner portion disposed diametrically

interior to said at least one conductive member and an outer portion disposed diametrically exterior to said at least one conductive member.

43. An electroplating system according to claim 42, wherein said at least one conductive member comprises one or more connectors having a plurality of holes.

44. An electroplating system according to claim 42, wherein said annular insulative member comprises an insulating material.

45. An electroplating system according to claim 44, wherein said insulating material comprises synthetic resin.

46. An electroplating system according to claim 42, wherein said annular packing is removable.

47. An electroplating system according to claim 42, wherein said annular packing comprises an elastic material.

48. An electroplating system according to claim 42, wherein said at least one conductive member is connected to an external electrode.

49. An electroplating system according to claim 42, wherein said annular packing and said at least one conductive member comprise a monolithic piece.

50. An electroplating system according to claim 42, further comprising a plate-like holding member for holding the semiconductor wafer together with said annular insulative member.

51. An electroplating system according to claim 50, wherein said plate-like holding member comprises an insulative material.

52. An electroplating system for electroplating a semiconductor wafer, comprising:

a plating bath containing an electrolytic solution;

an anode disposed within said plating bath; and

a semiconductor wafer holder for holding the semiconductor wafer so as to allow the semiconductor wafer to face said anode, the semiconductor wafer holder comprising:

an annular insulative member defining a central opening;

an annular packing disposed on said annular insulating member and defining a contacting surface for contacting a semiconductor wafer; and

a plurality of conductive members disposed in said annular insulating member, each of said conductive members having an inner portion adapted to contact a semiconductor wafer and serving as a cathode, and an outer portion adapted to contact a conductive element electrically connected to an external electrode.

53. An electroplating system according to claim 52, wherein said conductive

member comprises one or more connectors having a plurality of holes.

54. An electroplating system according to claim 52, wherein said annular insulative member comprises an insulating material.

55. An electroplating system according to claim 54, wherein said insulating material comprises synthetic resin.

56. An electroplating system according to claim 52, wherein said annular packing is removable.

57. An electroplating system according to claim 52, wherein said annular packing comprises an elastic material.

58. An electroplating system according to claim 52, wherein said annular packing and said at least one conductive member comprise a monolithic piece.

59. An electroplating system according to claim 52, further comprising a plate-like holding member for holding the semiconductor wafer together with said annular insulative member.

60. An electroplating system according to claim 59, wherein said plate-like holding member comprises an insulative material.

61. An electroplating system according to claim 52, wherein said conductive element is provided on said plate-like holding member.